Spot Safety Project Evaluation

Project Log # 200512214

Spot Safety Project # 10-95-007

Spot Safety Project Evaluation of the Installation of
Left Turn Lanes on US 52 at Cookson Fibers Industrial Facility
North of Ansonville
Anson County

Documents Prepared By:

Safety Evaluation Group
Traffic Safety Systems Management Section
Traffic Engineering and Safety Systems Branch
North Carolina Department of Transportation

Principal Investigator

_____ 7/26/2006
Brad Robinson, EI Date

Traffic Safety Project Engineer

Spot Safety Project Evaluation Documentation

Subject Location

Evaluation of Spot Safety Project Number 10-95-007 – The Intersection of US 52 at Cookson Fibers (currently Premiere Fibers, Inc) Industrial Facility in Anson County.

Project Information and Background from the Project File Folder

The spot safety project improvement countermeasure chosen for the subject location was the installation of left turn lanes on southbound US 52 at Cookson Fibers Industrial Facility (formerly Toleram Fibers and currently Premiere Fibers, Inc.). US 52 is a two lane facility at the subject location with a speed limit of 55 mph.

Cookson Fibers Industrial Facility requested left turn lanes on US 52 for its facility due to the expansion of the plant in late 1993. They were anticipating an increase in work forces, and with the entrances located on the top of a hill and within a curve they wanted to prevent accidents before they occurred. There are three entrances to the industrial facility, all of which currently have turn lanes.

The final completion date for the improvement at the subject intersection was on May 27, 1997 with a total cost of $75,000.00.

Naive Before and After Analysis

After reviewing the spot safety project file folder along with all the crashes at the subject location, the crash data omitted from this analysis to consider for an adequate construction period was from April 1, 1997 through June 30, 1997. The before period consisted of reported crashes from January 1, 1990 through March 31, 1997 (7 years and 3 months) and the after period consisted of reported crashes from July 1, 1997 through September 30, 2004 (7 years and 3 months). The beginning date for this analysis was determined by the available crash data at the time the crash analysis was completed.

The treatment data consisted of all crashes on a strip of US 52 from 150 feet south of the turn lane taper (MP 24.62) to 150 feet north of the left turn lane and turn lane taper (MP 24.98). *Please see attached location map and photos for further details*.

The following data table depicts the Naive Before and After Analysis for the treatment location. Please note that Rear End Crashes and Left Turn – Same Roadway Crashes related to the industrial facility were the target crashes for the applied countermeasure.

Treatment Information			
	Before	After	Percent Reduction (-) Percent Increase (+)
Total crashes	4	1	-75.0
Total Severity Index	2.85	1	-64.9
Target Crashes	0	0	N/A
Target Crashes Severity Index	N/A	N/A	N/A
Volume	3300	4600	39.4

The naive before and after analysis at the treatment location resulted in a 75 percent decrease in Total Crashes, no change in Target Crashes, and a 39 percent increase in Average Daily Traffic (ADT). The before period ADT year was 1993 and the after period ADT year was 2001.

Results and Discussion

The naive before and after analysis involving the comparison of treatment actual before data versus treatment actual after data resulted in a 75 percent decrease in Total Crashes and no change in Target Crashes. The summary results above demonstrate that the treatment location appears to have had a decrease in Total Crashes from the before to the after period.

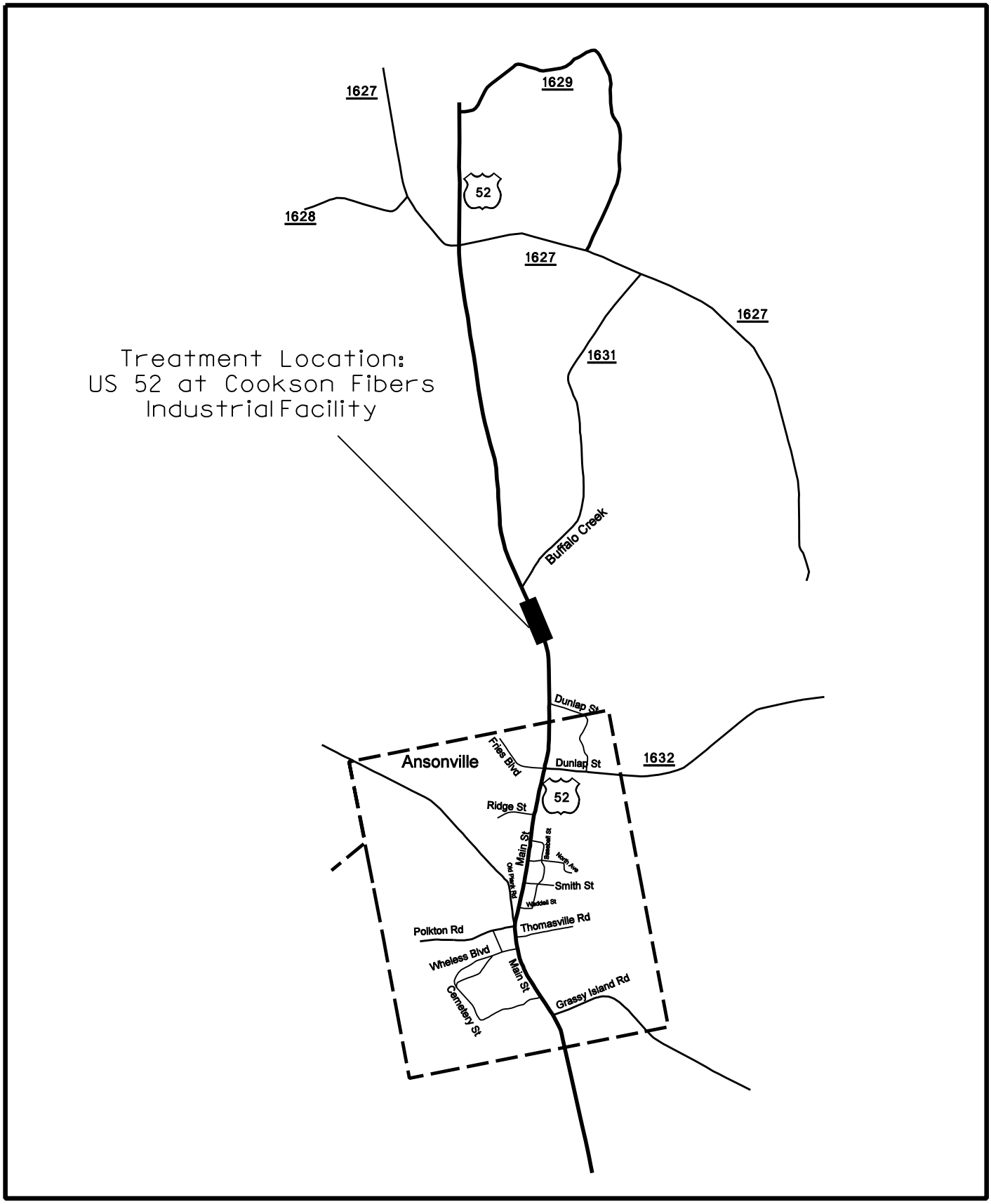
The decrease in Total Crashes can be misleading. After reviewing the crash reports, it does not appear that any of the crashes in the before period were related to the industrial facility. Two of the four crashes were related to northbound vehicles using the southbound lane in an attempt to pass a slower moving vehicle in front of them. The third crash was related to a northbound vehicle running off the roadway into a ditch bank while trying to avoid a vehicle stopped in the roadway. The fourth crash was a collision with a deer. The single after period crash also did not appear to be a related to the industrial complex. It involved a northbound vehicle running off the right side of the road into a culvert at the industrial facility's driveway. No reason for the lane departure was given in the crash report.

As seen in the table above, there were no target crashes in the before or the after period. As stated in the *Project Background*, the left turn lane installation was used to prevent crashes. There was a high increase in ADT (39.4%). Installing the left turn lanes might have reduced delay at the subject location, but it cannot be determined by this data if crashes were actually prevented.

Please see the attached *Treatment Site Photos*. Photos are provided along US 52 at the subject location.

As the Safety Evaluation Group completes additional spot safety reviews for this type of countermeasure, we will be able to provide objective and definite information regarding actual crash reduction factors for this type of intersection.

Location Map
Anson County
Evaluation of Spot Safety Project 10-95-007



Treatment Site Photos Taken July 11, 2006(All Pictures Taken Driving South on US 52)

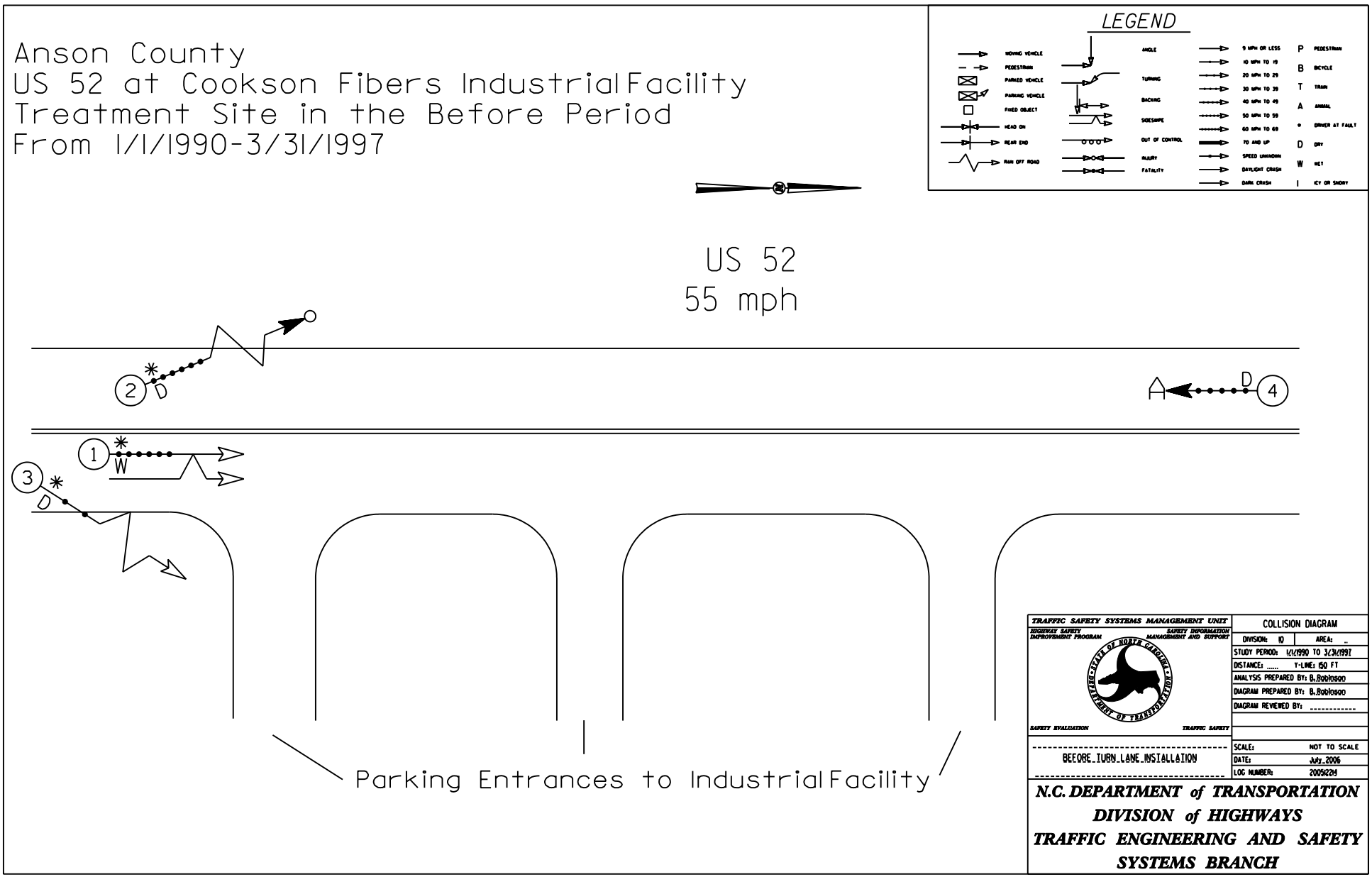
Before Northern Entrance

At Northern Entrance

At Middle Entrance

At Southern Entrance

Anson County
US 52 at Cookson Fibers Industrial Facility
Treatment Site in the Before Period
From 1/1/1990-3/31/1997



Anson County
US 52 at Cookson Fibers Industrial Facility
Treatment Site in the After Period
From 7/1/1997-9/30/2004

LEGEND

MOVING VEHICLE
PEDESTRIAN
PARKED VEHICLE
PARKING VEHICLE
FIXED OBJECT
HEAD ON
REAR END
RAN OFF ROAD
ANGLE
TURNING
BACKING
SIDESWIPE
OUT OF CONTROL
INJURY
FATALITY
9 MPH OR LESS
10 MPH TO 19
20 MPH TO 29
30 MPH TO 39
40 MPH TO 49
50 MPH TO 59
60 MPH TO 69
70 AND UP
SPEED UNKNOWN
DAYLIGHT CRASH
DARK CRASH
P PEDESTRIAN
B BICYCLE
T TRAIN
A ANIMAL
* DRIVER AT FAULT
D DRY
W WET
I ICY OR SNOWY

US 52
55 mph

1

Parking Entrances to Industrial Facility

TRAFFIC SAFETY SYSTEMS MANAGEMENT UNIT
HIGHWAY SAFETY IMPROVEMENT PROGRAM
SAFETY INFORMATION MANAGEMENT AND SUPPORT
SAFETY EVALUATION
TRAFFIC SAFETY

AFTER TURN LANE INSTALLATION

COLLISION DIAGRAM

DIVISION: 10	AREA: ..
STUDY PERIOD:	1/1/1997 TO 9/30/2004
DISTANCE:	Y-LINE: 150 FT
ANALYSIS PREPARED BY:	B.Babiasoo
DIAGRAM PREPARED BY:	B.Babiasoo
DIAGRAM REVIEWED BY:	----------
SCALE:	NOT TO SCALE
DATE:	July 2006
LOG NUMBER:	20054224

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
TRAFFIC ENGINEERING AND SAFETY SYSTEMS BRANCH